

IN THE CLAIMS

Please amend the claims as follows.

1. (Previously presented) A polymer of Claim 7, wherein said polymer has an average cationic charge density of 2.77 or less units per 100 daltons molecular weight at a pH of from 4 to 12.

2. (Currently Amended) A polymer according to Claim 1, wherein said polymer ~~is a suds/foam stabilizer~~ having an average cationic charge density from 0.01 to about 2.75 units per 100 daltons molecular weight at a pH of from 4 to 12.

3. (Previously presented) A polymer according to Claim 1, wherein said polymer has a hydroxyl group density of from 0.5 or less as measured by the Hydroxyl Group Density Equation.

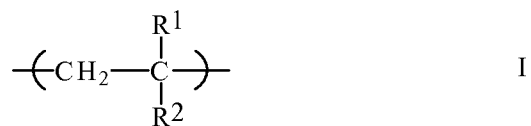
4. (Previously presented) A polymer according to Claim 1, wherein said polymer comprises:

- iv) units capable of having an anionic charge at a pH of from 4 to 12;
- v) units capable of having an anionic charge and a cationic charge at a pH of from 4 to 12;
- vi) units having no charge at a pH of from 4 to 12; and
- vii) mixtures of units (iv), (v), (vi), and (vii).

5. (Cancelled).

6. (Currently amended) A polymer suds/foam stabilizer consisting essentially of:

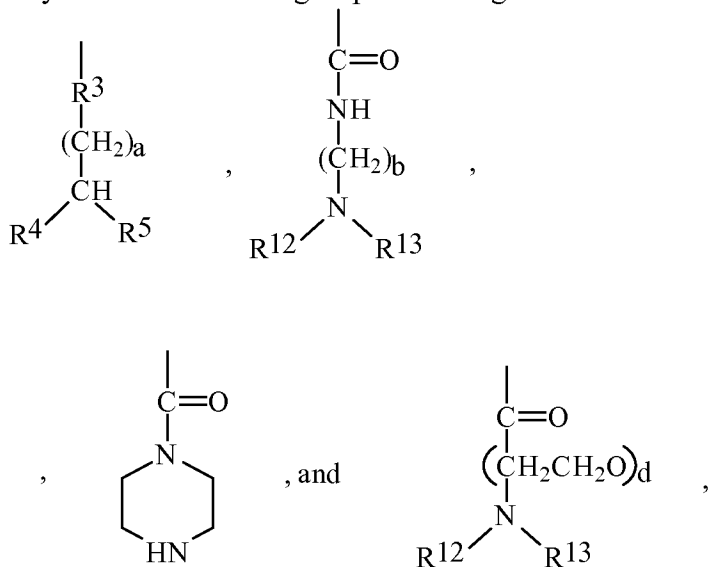
A. at least one cationic monomeric unit A, capable of having a cationic charge at a pH in the range of from 4 to 12, having a Formula I:



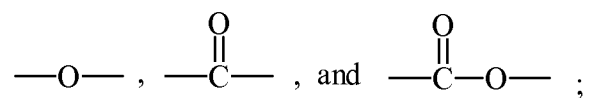
wherein

R^1 is H or an alkyl having 1 to 10 carbon atoms,

R^2 is a moiety selected from the group consisting of

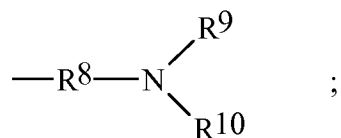


wherein R^3 is selected from the group consisting of



a is an integer from 0 to 16; b is an integer from 2 to 10; c is an integer from 2 to 10; d is an integer from 1 to 100;

R^4 and R^5 are independently selected from the group consisting of -H, and

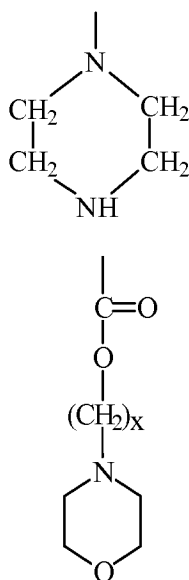


R^8 is independently selected from the group consisting of a bond and an alkylene having

1 to 18 carbon atoms;

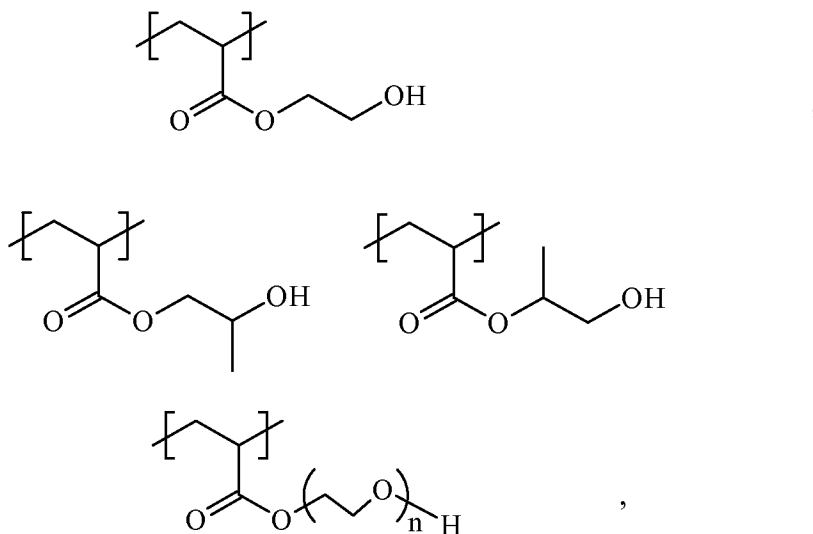
R^9 and R^{10} are independently selected from the group consisting of -H, alkyl having 1 to 10 carbon atoms;

R^{12} and R^{13} are independently selected from the group consisting of H and alkyl having from 1 to 10 carbon atoms;



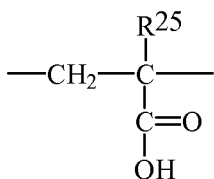
wherein x is an integer from 2 to 10;

B. at least one monomeric unit B selected from the group consisting of:

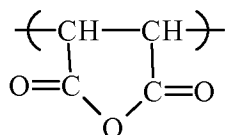


wherein n is an integer from 1 to 50; and

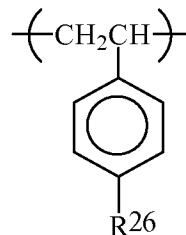
C. [[optionally]] at least one monomeric unit C selected from the group consisting of:



wherein R²⁵ is -H or -CH₃,



and



wherein R²⁶ is -H or CH₃ ,

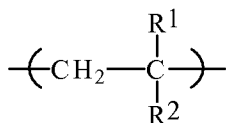
wherein said polymer has an average cationic charge density of 0.75 to 2.25 units per 100 daltons molecular weight at a pH of 4 to 12 and a molecular weight of 10,000 to 100,000 daltons,

wherein the molar ratio of said monomeric unit A : monomeric unit B : monomeric unit C is 1 to 9 : 1 to 9 : 1 to 6 respectively, and

wherein the polymer is a suds/foam stabilizer.

7. (Currently Amended) A polymer suds/foam stabilizer consisting essentially of:

A. at least one cationic monomeric unit A, capable of having a cationic charge at a pH in the range of from 4 to 12, having a Formula I:

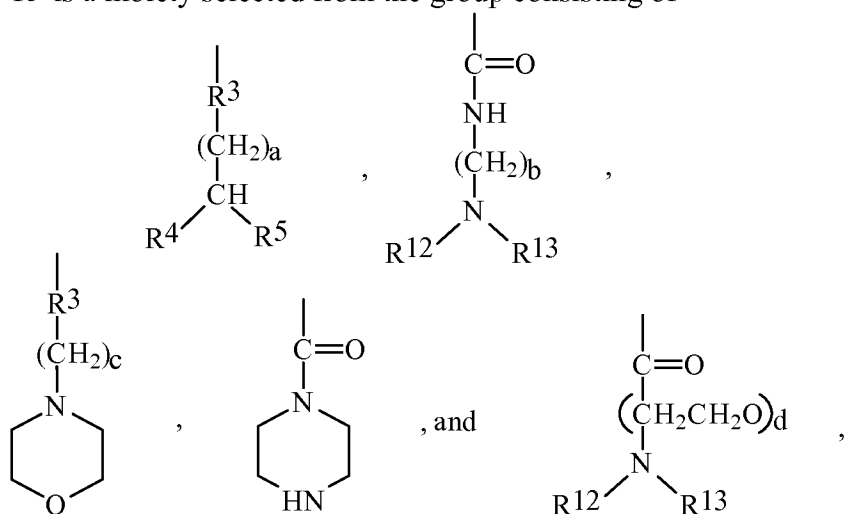


I

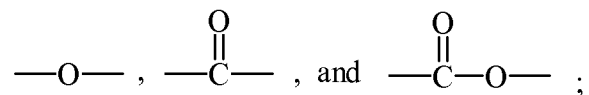
wherein

R¹ is H or an alkyl having 1 to 10 carbon atoms,

R² is a moiety selected from the group consisting of

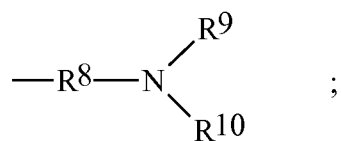


wherein R³ is selected from the group consisting of



a is an integer from 0 to 16; b is an integer from 2 to 10; c is an integer from 2 to 10; d is an integer from 1 to 100;

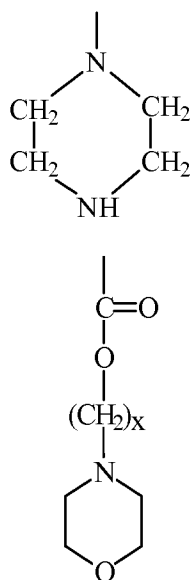
R⁴ and R⁵ are independently selected from the group consisting of -H, and



R⁸ is independently selected from the group consisting of a bond and an alkylene having 1 to 18 carbon atoms;

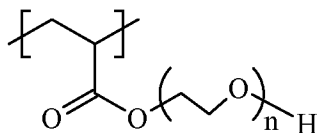
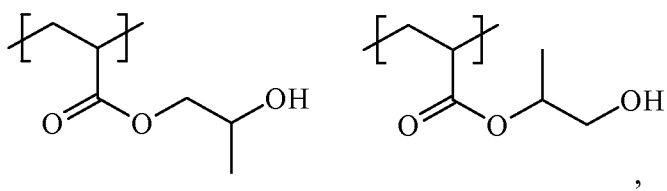
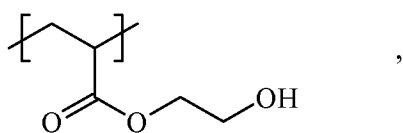
R⁹ and R¹⁰ are independently selected from the group consisting of -H, alkyl having 1 to 10 carbon atoms;

R¹² and R¹³ are independently selected from the group consisting of H and alkyl having from 1 to 10 carbon atoms;



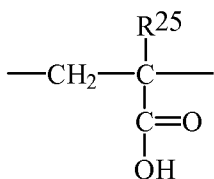
wherein x is an integer from 2 to 10;

B. at least one monomeric unit B selected from the group consisting of:

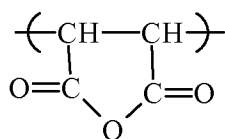


wherein n is an integer from 1 to 50; and

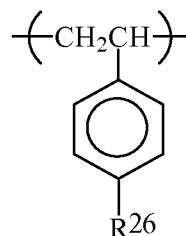
C. [[optionally]] at least one monomeric unit C selected from the group consisting of:



wherein R²⁵ is -H or -CH₃,



and



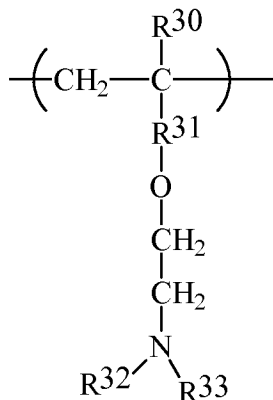
wherein R²⁶ is -H or CH₃ wherein the molecular weight of the polymer is in the range of about 10,000 to about 300,000 daltons as determined via conventional gel permeation chromatography, wherein said polymer has an average cationic charge density of 0.01 to 2.75 units per 100 daltons molecular weight at a pH of 4 to 12,

wherein the molar ratio of said monomeric unit A : monomeric unit B : monomeric unit C is 1 to 9 : 1 to 9 : 1 to 6 respectively, and

wherein the polymer is a suds/foam stabilizer.

8. (Original) The polymer of Claim 7, wherein said polymer comprises at least one said monomeric unit A, at least one said monomeric unit B and at least one said monomeric unit C.

9. (Original) The polymer of Claim 7, wherein said at least one monomeric unit A is selected from the group consisting of:

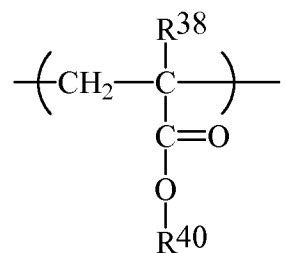


wherein R³⁰ is H or –CH₃,

wherein R³¹ is a bond or $\text{—}\overset{\text{O}}{\underset{\text{||}}{\text{C}}}\text{—}$, and
 R³² and R³³ are –CH₃ or –C₂H₅.

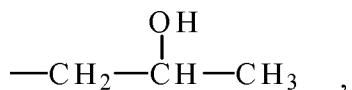
10. (Currently Amended) The polymer of Claim 9, wherein said polymer is a terpolymer,

said at least one monomeric unit B is selected from the group consisting of:



wherein R³⁸ is H and

R⁴⁰ is selected from the group consisting of –CH₂CH₂-OH and

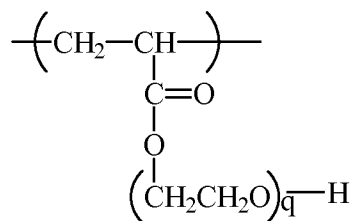


and $\begin{array}{c} \text{CH}_3 \\ | \\ \text{—CH—CH}_2\text{—OH} \end{array} \quad ,$

said terpolymer comprising said at least one monomeric unit C;

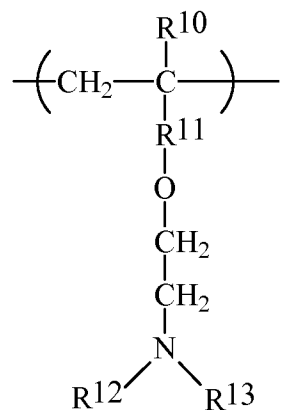
~~wherein the molar ratio of said monomeric unit A : monomeric unit B : monomeric unit C is 1 to 9 : 1 to 9: 1 : 1 to 6 respectively.~~

11. (Original) The polymer of Claim 7, wherein the at least one monomeric unit B has the formula:



wherein q ranges from 1 to 12.

12. (Original) The polymer of Claim 11, wherein the polymer is a terpolymer, said at least one monomeric unit A is selected from the group consisting of:

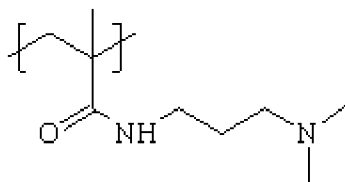


wherein R¹⁰ is H or CH₃,

R¹¹ is a bond or $\text{---}\overset{\text{O}}{\parallel}{\text{C}}\text{---}$, and R¹² and R¹³ are ---CH_3 or $\text{---C}_2\text{H}_5$, and said monomer comprises said at least one monomeric unit C.

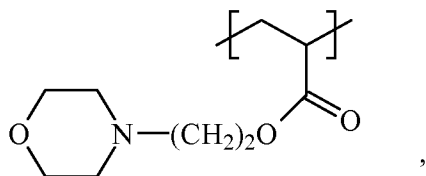
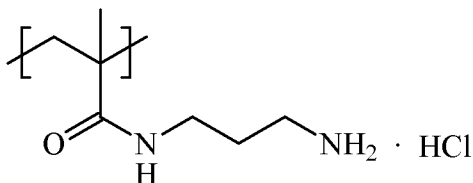
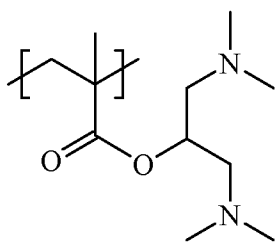
13. (Previously presented) The polymer of Claim 12, wherein the molar ratio of monomeric unit A : monomeric unit B : monomeric unit C ranges from 1 to 9 : 1 to 3 : 9 to 3 respectively.

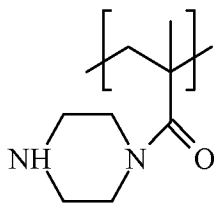
14. (Previously Presented) The polymer of Claim 7, wherein said at least one monomeric unit A has a formula selected from the group consisting of:



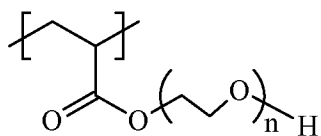
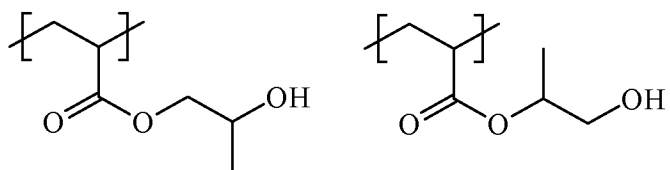
15. (Currently Amended) A polymer suds/foam stabilizer consisting essentially of:

A. at least one cationic monomeric unit A, capable of having a cationic charge at a pH in the range of from 4 to 12, wherein said at least one monomeric unit A has a formula selected from the group consisting of:



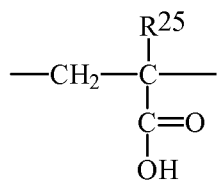


B. at least one monomeric unit B selected from the group consisting of:

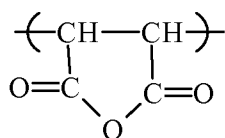


wherein n is an integer from 1 to 50; and

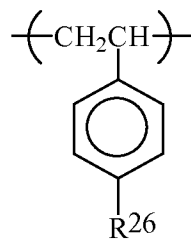
C. [[optionally]] at least one monomeric unit C selected from the group consisting of:



wherein R^{25} is -H or -CH₃,



and



wherein R²⁶ is -H or CH₃ wherein the molecular weight of the polymer is in the range of about 10,000 to about 300,000 daltons as determined via conventional gel permeation chromatography,
wherein said polymer has an average cationic charge density of 0.01 to 2.75 units per 100 daltons molecular weight at a pH of 4 to 12,
wherein the molar ratio of said monomeric unit A : monomeric unit B : monomeric unit C is 1 to 9 : 1 to 9 : 1 to 6 respectively, and
wherein the polymer is a suds/foam stabilizer.

16. (Cancelled)

17. (Original) The polymer of Claim 7, selected from the group consisting of:
poly(HEA-co-DMAM-co-AA) terpolymer,
poly(HPA-co-DMAM-co-AA) terpolymer, and
poly(PEG-acrylate-co-DMAM-co-AA) terpolymer.

18. (Cancelled)

19. (Previously Presented) A method for cleaning hair or skin comprising applying an effective amount of a cleaning composition comprising the polymer of Claim 1 and at least one deterative surfactant to hair or skin in need of cleaning, provided that a 10% aqueous solution of said composition has a pH from 4 to 9.

20. (Original) The method of Claim 19, wherein said composition further comprises at least one member of the group consisting of a pearlizing agent, a silicone hair conditioning agent, and an antidandruff ingredient.

21. (Original) The method of Claim 20, wherein said composition comprises:
a) said pearlizing agent
b) a nonionic surfactant

- c) an amphoteric surfactant
- d) a glycol emulsifier
- e) water.

22. (Original) The method of Claim 20, wherein said composition comprises at least one amphoteric surfactant and said amphoteric surfactant comprises at least one member of the group consisting of:

the alkali salts of alkyl amphodipropionates, alkyl amphodiacetates, alkyl amphoglycinates, alkyl amphopropyl sulfonates and alkyl amphopropionates wherein alkyl represents an alkyl group having 6 to 20 carbon atoms.

23. (Original) The method of Claim 22, wherein in said at least one amphoteric surfactant the alkyl group is derived from coconut oil or is a lauryl group.

24. (Previously Presented) A method for cleaning hair or skin comprising applying an effective amount of a cleaning composition comprising the polymer of Claim 7 and at least one surfactant to hair or skin in need of cleaning.

25. (Original) A composition for cleaning hair or skin comprising:
the polymer of Claim 1,
at least one deterative surfactant, and at least one member of the group consisting of a pearling agent, a silicone hair conditioning agent, and an antidandruff ingredient, provided that a 10% aqueous solution of said composition has a pH from 4 to 12.

26. (Original) A composition for cleaning hair or skin comprising:
the polymer of Claim 7,
at least one surfactant, and at least one member of the group consisting of a pearling agent, a silicone hair conditioning agent, and an antidandruff ingredient.

27. (Original) The composition of Claim 26, wherein said silicone compound is an alpha, omega-trimethylsilyl-polydimethylsiloxane having a viscosity at 25°C of at least 25

centistokes and less than 60,000 centistokes.

28. (Original) A method for washing a fabric article in a washing medium comprising:
applying an effective amount of a laundry cleaning composition comprising the
polymer of Claim 1 and at least one detergent surfactant to a fabric article in need of cleaning.

29. (Original) The method of Claim 28, wherein said composition washes a colored
fabric article.

30. (Original) The method of Claim 28, wherein said composition comprises at least
one member of the group consisting of an aminosilicone, a Gemini surfactant, a detergency builder,
a bleach, an activator for percompound bleach, a soil suspending agent, a soil antiredeposition
agent, a foam suppressant agent and a fabric softener.

31. (Original) The method of Claim 28, wherein said composition comprises a foam
suppressant agent.

32. (Original) A method for washing a fabric article in a washing medium comprising:
applying an effective amount of a laundry cleaning composition the polymer of
Claim 7 and at least one detergent surfactant to a fabric article in need of cleaning.

33. (Original) A detergent composition for washing a fabric article comprising:
the polymer of Claim 1;
at least one detergent surfactant; and
at least one member of the group consisting of an aminosilicone, a Gemini
surfactant, a detergency builder, a bleach, an activator for percompound bleach, a soil suspending
agent, a soil antiredeposition agent, a foam suppressant agent and a fabric softener;
provided that a 10% aqueous solution of said detergent composition has a pH of
from 4 to 12.

34. (Original) A method for extinguishing fire comprising applying a foam to a fire,

wherein the foam comprises a foaming agent and a polymer of Claim 1.

35. (Previously Presented) A method for treating agricultural substrate selected from the group consisting of plants, soil or seed comprising,

applying to the substrate a foam comprising at least one agricultural chemical selected from the group consisting of a herbicide, a pesticide, and a fungicide, a foaming agent and a polymer of Claim 1.

36. (Original) A method comprising, injecting into a subterranean formation, a foam comprising a foaming agent and a polymer of Claim 1.

37. (Original) A method for shaving hair from skin comprising applying foam shaving cream to the skin, said shaving cream comprising a foaming agent and a polymer of Claim 1.

38. (Original) A method for shaving hair from skin comprising applying a shaving gel to the skin, said gel comprising a foaming agent and a polymer of Claim 1.

39. (Original) A method comprising applying a depilatory foam to skin, said foam comprising a foaming agent and a polymer of Claim 1.

40. (Original) A method of cleaning hard bathroom surfaces comprising applying to said surfaces a foam cleaner comprising a foaming agent and a polymer of Claim 1.

41. (Original) A process for making paper comprising aiding retention of titanium dioxide on the paper during the paper making comprising treating the paper with an aqueous solution comprising titanium dioxide and a polymer of Claim 1.

42. (Cancelled)

43. (Previously Presented) The polymer of Claim 7, consisting of:

A. said at least one cationic monomeric unit A,

- B. at least one monomeric unit B; and
- C. optionally said at least one monomeric unit C.

44. (Previously presented) A polymer according to Claim 7, wherein said polymer has a molecular weight of about 35,000 to about 300,000 daltons as determined via conventional gel permeation chromatography.

45. (Previously presented) A polymer according to Claim 7, wherein the molar ratio of said monomeric unit A: monomeric unit B : monomeric unit C is 1 to 9 monomeric unit A : 1 to 9 monomeric unit B : 1 to 6 monomeric unit C.

46. (Previously presented) A polymer according to Claim 7, wherein the molar ratio of said monomeric unit A: monomeric unit B: monomeric unit C is 1 to 9 monomeric unit A : 1 to 9 monomeric unit B : 1 to 3 monomeric unit C.

47. (Previously presented) A polymer according to Claim 7, wherein the molar ratio of said monomeric unit A : monomeric unit B : monomeric unit C is 1 to 3 monomeric unit A: 3 to 9 monomeric unit B : 0 to 1 monomeric unit C.

48. (Previously presented) A terpolymer according to claim 47, wherein monomeric unit A is 2-(dimethylamino)ethyl methacrylate, monomeric unit B is selected from the group consisting of 2-hydroxyethyl acrylate, hydroxypropyl acrylate and poly(ethylene glycol) acrylate and monomeric unit C is acrylic acid.